

## The fabrication method of full color organic electroluminescent device

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### Abstract of TW451601

A fabrication method of full color organic electroluminescent device is disclosed, wherein the full color organic electroluminescent device is formed on the Indium-tin oxide (ITO) glass substrate. The method comprises: form patterns on the ITO glass substrate by microlithography process and clean up the surface of ITO glass substrate. Form an insulating pad on the ITO glass substrate. Form low protection mask and high protection mask by dry film photoresist process respectively, form hole conduction layer by evaporation process, form red, green, and blue sub-pixels simultaneously by co-evaporation process using low protection mask and high protection mask as the barrier. Form an electron conduction layer and metal layer by evaporation process. In the design of the processing machine, the substrate does not rotate in the film-coating process, the substrates are transferred piece by piece continuously by a conveyer belt, individual film-coating work is performed when they pass through the upper opening of the cavity of different film-coating materials.

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Fabrication of full color organic electro luminescent device to form red, green, and blue sub-pixels simultaneously by co-evaporation process using low protection mask and high protection mask

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Number of Countries: 002 Number of Patents: 003

Patent Family:

| Patent No      | Kind | Date     | Applicat No   | Kind | Date     | Week     |
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| TW 451601      | A    | 20010821 | TW 2000115831 | A    | 20000807 | 200244 B |
| US 6517996     | B1   | 20030211 | US 2000715527 | A    | 20001117 | 200314   |
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Patent Details:

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Abstract (Basic): TW 451601 A

NOVELTY - Fabrication of full color organic electroluminescent device is disclosed, wherein the full color organic electroluminescent device is formed on the Indium-tin oxide (ITO) glass substrate. The method comprises: form patterns on the ITO glass substrate by microlithography process and clean up the surface of ITO glass substrate. Form an insulating pad on the ITO glass substrate. Form low protection mask and high protection mask by dry film photoresist process respectively, form hole conduction layer by evaporation process, form red, green, and blue sub-pixels simultaneously by co-evaporation process using low protection mask and high protection mask as the barrier. Form an electron conduction layer and metal layer by evaporation process. In the design of the processing machine, the substrate does not rotate in the film-coating process, the substrates are transferred piece by piece continuously by a conveyer belt, individual film-coating work is performed when they pass through the upper opening of the cavity of different film-coating materials. DwgNo 1/1

Title Terms: FABRICATE; FULL; COLOUR; ORGANIC; ELECTRO; LUMINESCENT; DEVICE ; FORM; RED; GREEN; BLUE; SUB; PIXEL; SIMULTANEOUS; CO; EVAPORATION; PROCESS; LOW; PROTECT; MASK; HIGH; PROTECT; MASK

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發明

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[54]名稱：全彩有機電激發光元件之製作方法

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謝佳芬

蔡榮源

新竹縣竹東鎮民族路五十巷十五號八樓

雲林縣西螺鎮東興里十二號

台南市西門路一段三八〇巷二弄三十六號

桃園縣龜山鄉樂善村長庚醫護新村四二一號九樓

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[57]申請專利範圍：

1.一種全彩有機電激發光元件的製作方法，用以在一銦錫氧化玻璃基板上形成該全彩有機電激發光元件，該方法包括：

圖案化該銦錫氧化玻璃基板；

清潔圖案化之該銦錫氧化玻璃基板表面；

形成一絕緣墊於該銦錫氧化玻璃基板上；

以一乾膜光阻製程形成複數個低保護罩幕之圖案；

以一乾膜光阻製程形成複數個高保護罩幕之圖案；

以一第一蒸鍍製程形成一電洞傳導層；

以該些低保護罩幕及該些高保護罩幕為阻障，以一第二蒸鍍製程同時形成複數個紅色、綠色及藍色次位素；

以一第三蒸鍍製程形成一電子傳導層；以及

以一第四蒸鍍製程形成一金屬層。

2.如申請專利範圍第1項所述之全彩有機電激發光元件的製作方法，其中形成該絕緣墊的材質為係選自由氮化矽及氧化矽所組成之族群中的任意組合。

3.如申請專利範圍第1項所述之全彩有機電激發光元件的製作方法，其中該低保護罩幕的厚度為1微米至10微米。

4.如申請專利範圍第1項所述之全彩有機電激發光元件的製作方法，其中該高保護罩幕的厚度為5微米至100微米。

5.如申請專利範圍第1項所述之全彩有機電激發光元件的製作方法，其中該電洞傳導層的材料為氮，氮'-雙苯基-氮，氮'-(間-甲基苯)聯苯胺。

6.如申請專利範圍第1項所述之全彩有機電激發光元件的製作方法，其中該電洞傳導層的厚度為30毫微米至100毫微米。

20. 7.如申請專利範圍第1項所述之全彩有機